

#### IV. NOMENCLATURAL TRANSFERS AND NEW VARIETIES AND FORMS

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(Plates 470-472)

CLEMATIS VIRGINIANA L., forma **missouriensis** (Rydb.), comb. nov. *C. missouriensis* Rydb. in Britton, Man. 421 (1901). *C. virginiana*, var. *missouriensis* (Rydb.) Palmer & Steyermark in Ann. Mo. Bot. Gard. xxii. 542 (1935), the combination here ascribed to them only through leniency or courtesy, since they failed to give the essential citation of the name-bringing synonym.

In their *Annotated Catalogue of the Flowering Plants of Missouri*, Ann. Mo. Bot. Gard. xxii. no. 3 (1935) Palmer & Steyermark repeatedly made new combinations similar to their *Clematis virginiana*, var. *missouriensis*, in which THEY CITE ONLY THE NAME AND NEVER THE PLACE OF PUBLICATION OF THE DESCRIPTION upon which the combination is based. The validity of such transfers is open to serious doubt. The essential task of connecting the new combination with the fundamental diagnosis is left to all who wish to know what is meant. The International Rules seem to be clear on this point. Article 44 reads:

The name of a species or of a subdivision of a species is not validly published unless it is accompanied (1) by a description of the group; or (2) by the citation of a previously and effectively published description of the group under another name; or (3) by a plate or figure with analyses showing essential characters; but this applies only to plates or figures published before January 1, 1908.

Examples of validly published names of species.—*Onobrychis eubrychidea* Boiss. (Fl. Or. II, 546: 1872), published with a description.—*Hieracium Flahaultianum* Arv.-Touv. et Gaut., published on a label with a printed diagnosis in a set of dried plants (*Hieraciotheca gallica*, nos. 935-942: 1903).—*Cynanchum nivale* Nyman (Syll. Fl. Eur. 108: 1854-55), published with a reference to *Vincetoxicum nivale* Boiss. et Heldr. previously described.

*Cynanchum nivale* Nyman was published by the CITATION of the earlier and properly published *Vincetoxicum nivale* Boiss. & Heldr. WITH THE CORRECT BIBLIOGRAPHIC REFERENCE. Any one can look up the original reference and thus know what Nyman had in mind. Only the few who have the proper indices and who can take the necessary time to learn where and when Rydberg published *Clematis missouriensis* (which happened to be in the work of another author) can make out what Palmer & Steyermark mean. Technically it may (and probably should) be maintained that such new combinations are invalid. As stated, however, these combinations and others like them have often been taken up under mental protest and wholly through leni-

ency. In cases of early authors, before the rules of nomenclature had been much clarified, few would protest such leniency. In the very modern cases, with the rules clearly known and professed to be followed, the putting out of names which may by good luck barely "get by" or whose acceptance depends wholly on the good-nature and friendly consideration of other botanists, rather than upon accurate meeting of the full but simple requirements of valid publication, is not commendable. If in these days the author of a new combination cannot or will not cite the bibliographic source, he is not prepared to do accurate transferring.

Whether or not *Clematis virginiana*, var. *missouriensis* was a validly published combination, the taxonomic fact is, that it has little, if any, geographic segregation from *C. virginiana*. The key-differences given in Britton's Manual are, that *C. virginiana* has "Leaves glabrate or nearly so; achenes with a thick obtuse margin," *C. missouriensis* having "Leaves decidedly silky beneath; achenes marginless." Plenty of *C. virginiana* from Ontario, Quebec, Nova Scotia and New England has the leaves as densely and permanently "silky"-pilose beneath as in sheets specially marked by Rydberg as *C. missouriensis*; and mature fruit of the latter displays quite as prominent margins as the less pubescent plants. As a mere form with leaves densely and permanently pilose beneath it should have a designation; I cannot look upon it as a good variety.

AMERICAN PARNASSIA PALUSTRIS (PLATES 470 and 471). In 1926, misidentifying the characteristic plant of northern America, from Labrador and Newfoundland nearly across the continent, as *Parnassia palustris*,  $\beta$ . *multiseta* Ledeb. Fl. Ross. i. 263 (1842) and noting its many departures from typical *P. palustris* L. of Eurasia, I proposed an American and eastern Asiatic species, *P. multiseta* (Ledeb.) Fernald in RHODORA, xxviii. 211 (1926). Subsequently Dr. Eric Hultén<sup>1</sup> has shown that true *P. palustris*,  $\beta$ . *multiseta* of Ledebour, the Asiatic plant, is not different from typical *P. palustris*. At the same time Hultén was inclined to place the American plant near *P. palustris*, var. *tenuis* Wahlenberg, Fl. Lapp. 74 (1812).

Granted that the type of *Parnassia palustris*,  $\beta$ . *multiseta*, therefore the type of *P. multiseta*, is inseparable from typical *P. palustris* (PLATE 470) it becomes necessary to find a proper name for the wide-ranging American plant (PLATE 471, FIGS. 1-8), for it is not satisfactory to refer it to var. *tenuis* (PLATE 471, FIGS. 9-11). I have, therefore, restudied the series and agree with Hultén that the broadly dispersed American plant is best treated as a geographic variety of *P.*

<sup>1</sup> Hultén, Fl. Kamtch. iii. 36 (1929).

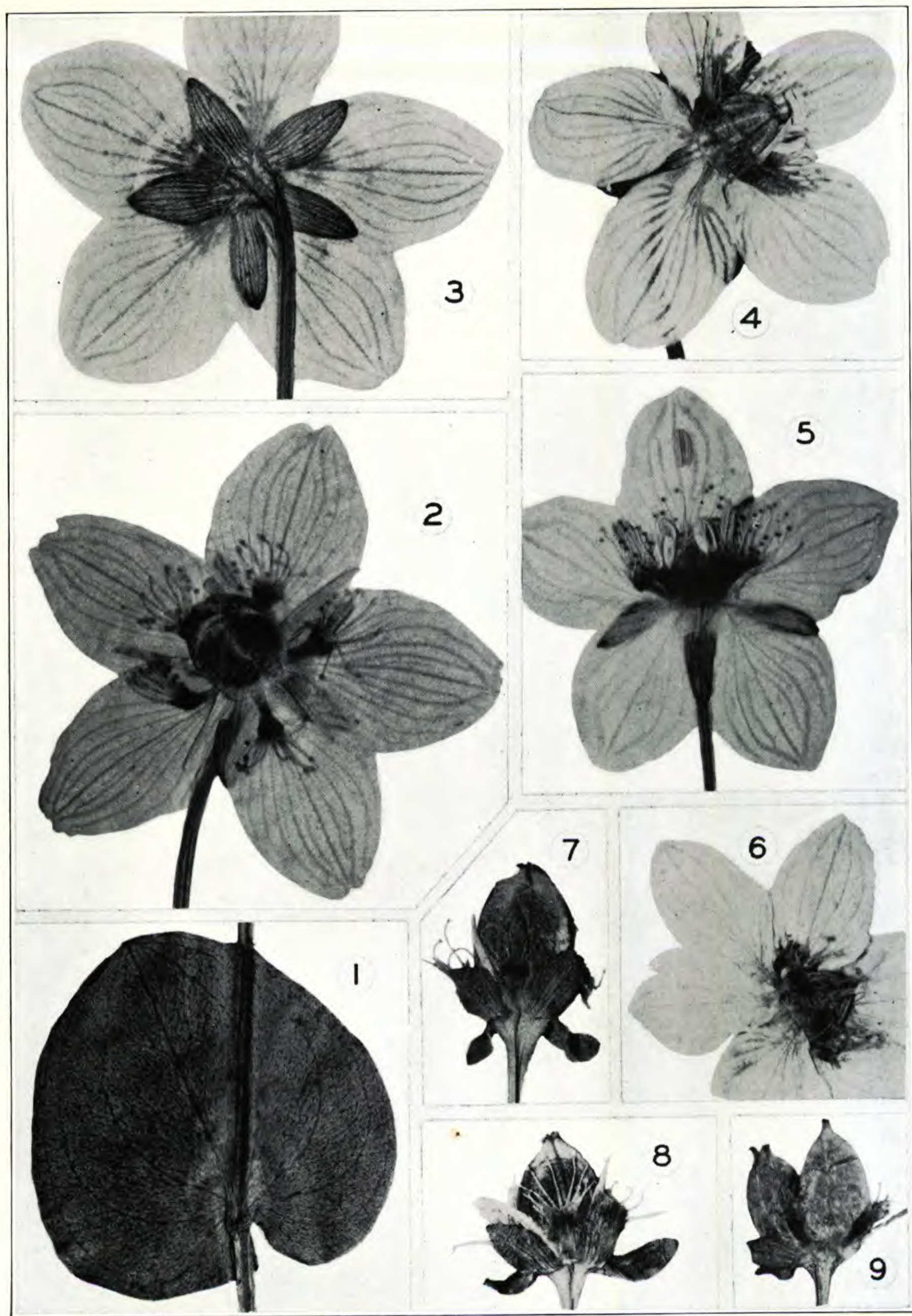


Photo. E. C. Ogden.

PARNASSIA PALUSTRIS, details  $\times 2$ . FIG. 1, cauline leaf from Saxony; FIGS. 2 and 3, expanded flowers from Saxony; FIG. 4, expanded flowers from Silesia; FIG. 5, expanded flower from Esthonia; FIG. 6, expanded flower (transition to var. NEOGAEA) from Kotzebue Sound; FIG. 7, fruit from Bohemia; FIG. 8, fruit from Moravia; FIG. 9, fruit from Upper Austria.

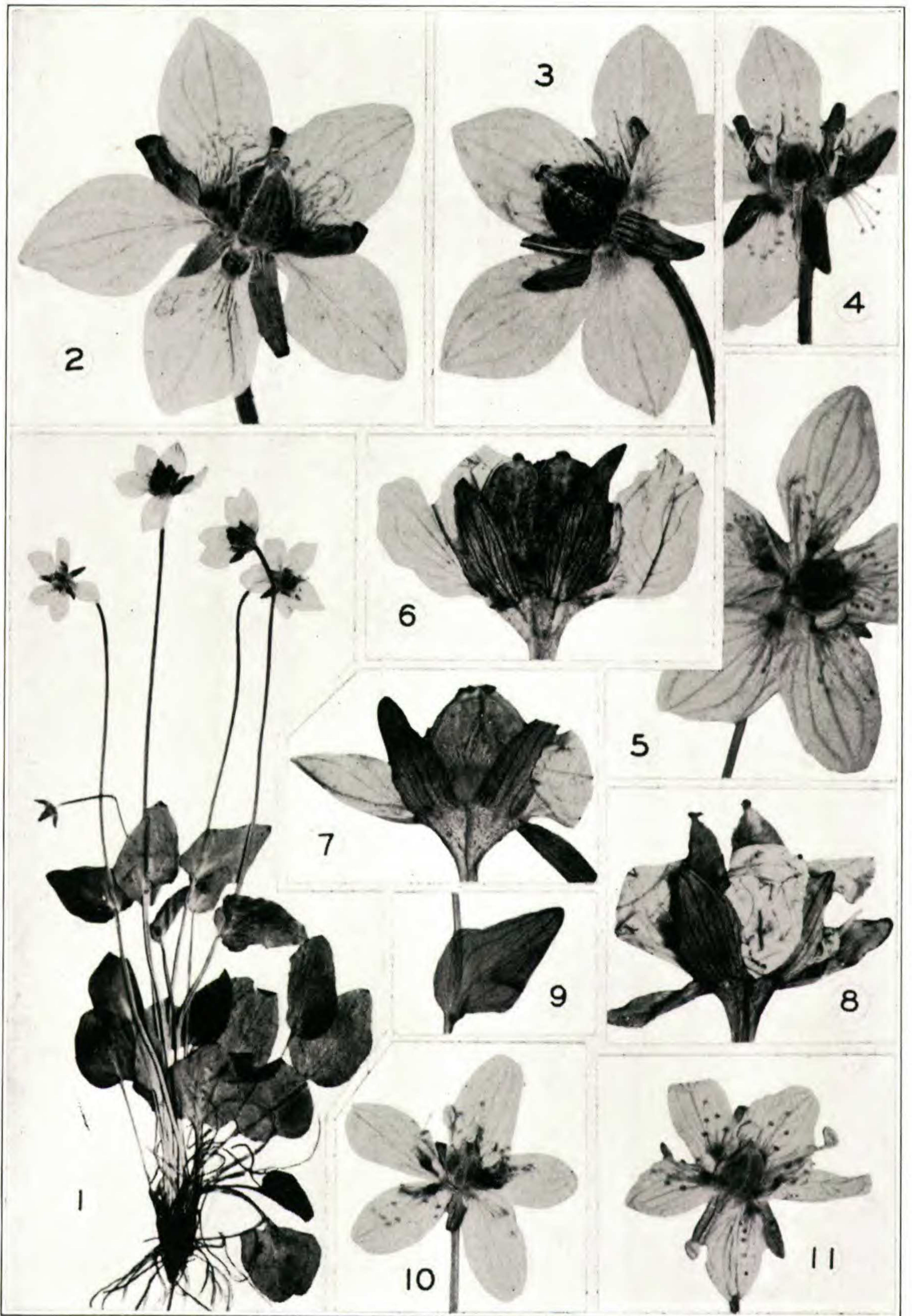


Photo. E. C. Ogden.

PARNASSIA PALUSTRIS, vars., habit  $\times \frac{1}{2}$ , details  $\times 2$ .

Var. NEOGAEA: FIG. 1, TYPE from Newfoundland; FIGS. 2-4, expanded flowers from Newfoundland; FIG. 5, expanded flower from Alaska; FIG. 6, fruit from Newfoundland; FIG. 7, fruit from Minnesota; FIG. 8, fruit from Manitoba.

Var. TENUIS: FIG. 9, cauline leaf from Jenissei; FIG. 10, expanded flower from Switzerland; FIG. 11, expanded flower from Iceland.

*palustris*—so strong a variety that to many it would stand unquestioned as a species. The distinctions are brought out in PLATES 470 and 471 (all details  $\times 2$ ) as well as can be done in view of the very slight color-contrasts in the flowers. These may be summarized as follows:

*P. PALUSTRIS* (typical). Cauline leaf rounded-ovate; calyx-lobes firm, oblong or elliptic, barely half as long as mature capsule, loosely ascending to reflexed in maturity; petals emarginate and apically with coarse teeth or merely round-tipped or obtuse, with about 13 conspicuous nerves and nerve-branches, soon deciduous; staminodia tapering below to narrow claws. Eurasia and Behring Sea region of Alaska. PLATE 470.

*P. PALUSTRIS*, var. (American). Cauline leaf deltoid-ovate, sub-acuminate; calyx-lobes subherbaceous, linear-lanceolate to lance-oblong, two-thirds as long to longer than capsule, less divergent or reflexed in maturity; petals rhombic-elliptic, tapering about equally to base and apex, with 7–11 faint nerves and nerve-branches, marcescent; staminodia with shorter and broader claws. Labrador to interior Alaska and locally southward. PLATE 471, FIGS. 1–8.

In the Behring Sea region of Alaska some plants are quite typical *Parnassia palustris*, others (PLATE 470, FIG. 6) show evident transition to the continental American plant. On account of the very evident transition in western Alaska between the two extremes I am treating the continental plant of North America as a geographic variety rather than as a species. It is not satisfactory to place it with var. *tenuis*. The latter plant superficially resembles ours in its cauline leaf (PLATE 471, FIG. 9) but it has much smaller flowers (FIGS. 10 and 11), with narrower petals subemarginate to broadly rounded at tip as in *typical P. palustris*, with the narrow-clawed staminodia of the latter plant, and, in anthesis, with the ovary very small. I have not seen good fruit of it. However, our generally dispersed variety of *P. palustris* is so well defined that I am calling it

*PARNASSIA PALUSTRIS* L., var. **neogaea**, var. nov. (TAB. 471, FIG. 1–8), foliis caulinis deltoideo-ovatis subacuminatis; calycis lobis subherbaceis lineari-lanceolatis vel late lanceolatis vel lanceolato-oblongis capsulam  $2/3$  aequantibus vel subaequantibus adscendentibus vel laxe patentibus; petalis rhomboideo-ellipticis ad basim et ad apicem aequaliter angustatis pallide 7–11-nervis marcescentibus; staminodiis cuneatis vel late unguiculatis.—Wet calcareous or basic soils, Labrador to Alaska, south to northwestern Newfoundland, northern Michigan, northern Minnesota, North Dakota, Wyoming and Oregon. TYPE: brookside on slaty hills back of Little Quirpon, Newfoundland, August 8, 1925, *Fernald & Gilbert* no. 28,481 (in Gray Herb.).

The many specimens cited by me as *Parnassia multiseta* in RHODORA xxviii. 211, 212 (1926), with the exception of those from the Behring

Sea region of Alaska and from Kamtchatka and that from California belong to *P. palustris*, var. *neogaea*.

PLATE 470, all details  $\times 2$ . PARNASSIA PALUSTRIS L.: FIG. 1, cauline leaf, from Waldenburg, Saxony, August 17, 1879, *Rehder*; FIGS. 2 and 3, expanded flowers, from same collection as fig. 1; FIG. 4, expanded flower, from Silesia, August 2, 1888, *Gebhardt*; FIG. 5, expanded flower, from Esthonia, *Sirgo* in Eston. Pl. no. 63; FIG. 6, expanded flower, transitional to var. *neogaea*, from Kotzebue Sound, Alaska, *Charis*; FIG. 7, fruiting calyx and capsule, from Dörfel, Bohemia, *Petrak*, Fl. Bohem. et Morav. Exsicc., Lfg. 1, no. 69; FIG. 8, fruiting calyx and capsule, from Ochoz, Moravia, *Jirasek & Svestka*, no. 329; FIG. 9, fruiting calyx and opened capsule, from Mt. Lichtenberg, Upper Austria, *Rauscher* in Fl. Exsicc. Austr.-Hung., no. 2511.

PLATE 471, details  $\times 2$ . PARNASSIA PALUSTRIS L., var. NEOGAEA, n. var.: FIG. 1, TYPE,  $\times \frac{1}{2}$ , from Little Quirpon, Newfoundland, *Fernald & Gilbert*, no. 28,481; FIG. 2, expanded flower, from Flower Cove, Newfoundland, *Fernald, Long & Dunbar*, no. 26,749; FIG. 3, expanded flower, from the TYPE; FIG. 4, expanded flower, from Isthmus Cove, Pistolet Bay, Newfoundland, *Wiegand, Gilbert & Hotchkiss*, no. 28,480; FIG. 5, from Anvik, Alaska, *J. W. Chapman*, no. 22; FIG. 6, fruiting calyx and opened capsule, from St. Barbe, Newfoundland, *Fernald, Long & Dunbar*, no. 26,751; FIG. 7, fruiting calyx and capsule, from Turtle Lake, Minnesota, August, 1892, *Sheldon*; FIG. 8, fruiting calyx and opened capsule, from Churchill, Manitoba, *G. Gardner*, no. 4<sup>c</sup>1.

Var. TENUIS Wahlenb.: FIG. 9, cauline leaf, from Dudinskoje (lat. 69° 23'), Jenissei, *Tolmatchew*, no. 137; FIG. 10, expanded flower, from Switzerland, *Nigg* in Braun-Blanquet, Fl. Raet. Exsicc., no. 257; FIG. 11, expanded flower, from Skutustadir-Myvatu, Iceland, July 14, 1895, *Elizabeth Taylor*.

BAPTISIA AUSTRALIS (L.) R. Br., var. **minor** (Lehm.), comb. nov. *B. minor* Lehm. in Nov. Act. Nat. Cur. xiv. 803 (1829). *B. australis*  $\beta$ . Torr. & Gray, Fl. N. Am. i. 385 (1840).—Differing from typical *B. australis* in its shorter-petioled and firmer leaves, with the larger mature leaflets only 1.5–4 cm. long.—The representative of the woodland, eastern *B. australis* on rocky prairies, in ravines and in open woods from Missouri and Kansas to Texas.

*B. australis*, var. *minor* seems to me a good geographic variety of *B. australis*, comparable with varieties of many other species in the more open and arid region west of the Mississippi, in having firmer and smaller foliage. I get no good differences of flower or fruit to separate it from the Alleghenian *B. australis*. It is probable that this plant was partly in mind when *B. vespertina* was published. The latter appeared as *B. vespertina* Small in Rydberg, Fl. Prair. Pl. 456 (1932), with a range given like that of *B. australis*, var. *minor*, the only member of the genus there treated by Rydberg with *blue* flowers, but described as having "stipe of the pod longer than the body." No form of the blue-flowered *B. australis* has such a stipe and I have never seen one in the genus; ordinarily it is barely exerted from the calyx and one-eighth to one-tenth as long as the body. No type is cited and it is surmised that *B. vespertina* was clumsily and erroneously

described; the blue-flowered *Baptisia* of Rydberg's area has very short and upwardly dilated stipes.

As to the typification of var. *minor*, one of Lehmann's specimens of his *B. minor* is in the Gray Herbarium. It is the small-leaved southwestern extreme.

ASTRAGALUS FRIGIDUS (L.) Gray, var. **gaspensis** (Rousseau), comb. nov. *A. gaspensis* Rousseau, Contr. Lab. Bot. Univ. Montréal, no. 24: 51 (1933). PLATE 472, FIGS. 9-13.

I am quite unable to find in var. *gaspensis* constant differences from Eurasian *Astragalus frigidus* and its western North American var. *americanus* (Hook.) Watson. Only on the slightly smaller legumes can the Gaspé plant be separated from the latter, which by such conservative and universally respected students as Sir William Hooker, Torrey, Bunge, Gray and Watson was considered only an American variety of the circumboreal *A. frigidus*. This species, treated by Ledebour (Fl. Ross.) as a series of slightly differing varieties across Europe and Siberia, has at least three varieties in North America. By Marcus E. Jones the Rocky Mountain plant was taken up as a species, *A. americanus* (Hook.) Jones, but he did not separate off the Gaspé plant; neither did Rydberg (N. Am. Fl.)! But Rousseau, in his student-thesis on *Les Astragalus du Québec*, treats the Gaspé material as constituting a definite species with several reputed constant characters.

It is most difficult to understand how Rousseau got his idea of typical *Astragalus frigidus* of Europe. His comparative note is as follows:

L'*A. gaspensis* diffère de l'*A. frigidus* de l'Europe (fig. 13) par le calice glabre, les dents calicinales non tachetées de noir, la pubescence plus légère des dents et des sinus, le pistil et le fruit glabres, le calice relativement moins long. L'*A. gaspensis* possède en outre un fruit généralement plus court et plus obtus aux deux bouts.<sup>1</sup>

Rousseau (p. 45) describes *Astragalus frigidus* of Europe as having "Calice: tube (long. 7 mm., circon. 6-7.5 mm.) recouvert d'une pubescence noire; dents (long. env. 1 mm.) noires, aigues . . . . Legumes fusiformes aigus . . . recouverts d'une pubescence noire et dense." Such a description and comparative note, with emphasis upon black pubescence of the calyx-tube, black teeth and *dense* black pubescence of the "fusiform" "acute" legume, strongly contrasts with the diagnosis of *A. gaspensis*: "Calicis tubo . . . glabro; dentibus viridibus

<sup>1</sup> Rousseau, l. c. 54 (1933).

. . . . leguminibus ovoidibus, obtusis ad apices, . . . glabris"; and Rousseau publishes drawings (his fig. 13, here reproduced, in part, as FIGS. 6 and 11) to bring out his points.

As stated, it is not clear how Rousseau acquired his conception of true *A. frigidus*. Linnaeus in 1755, in the 2d edition of his *Flora Suecica*, gave a detailed account of the plant, *Phaca alpina*, which under *Astragalus*, is *A. frigidus*. His "Calyx campanulatus, glaber, dentibus fuscis"<sup>1</sup> was unequivocal. So was his account, in 1763, of the "Legumen . . . cylindrico-ovatum, adpersum pilis raris."<sup>2</sup> A. P. Decandolle, describing *Phaca frigida* in 1802, said "Calyx . . . pallidus, glaber."<sup>3</sup> Gradually, as material has accumulated, it has been realized that the calyx-tube may be either quite glabrous or sparsely pubescent. We accordingly find Rouy saying "Calice . . . presque glabre à la base, couvert de poils noirs au sommet";<sup>4</sup> and Ascherson & Graebner, "Kelch . . . am Grunde fast kahl, oberwärts schwarz behaart."<sup>5</sup> Of the inflorescences of European *A. frigidus* in the Gray Herbarium most show, upon careful search, a few scattered dark strigae on the calyx-tube (FIGS. 2, 3, and 5) but 10 specimens (FIG. 4) show none whatever. Sufficient search in the American material, which usually has glabrous calyx-tubes, will reveal similar trichomes. FIG. 14 is of a calyx from *Stewardson Brown*, no. 1250, from Maligne Lake, Alberta, of *A. frigidus*, var. *americanus*, which, because of its "glabrous" calyx Rousseau maintains as a species, *A. americanus*, separate from *A. frigidus*. As an absolute specific character the glabrousness is rather fickle.

The tendency to black trichomes on the borders of the calyx-teeth in the European *Astragalus frigidus* seems to be general, though very variable, some specimens barely showing it. In var. *gaspensis* (FIG. 10) the minute pubescence of the teeth is whitish. In var. *gaspensis*, too, as in var. *americanus*, the legume is glabrous, in typical *A. frigidus* and in var. *littoralis* (Hook.) Wats. it is pubescent; but in the European plant the pubescence is so short (FIG. 8) that, in first publishing *Phaca frigida*, Linnaeus said "legum . . . subpilosis";<sup>6</sup> and later authors specially note its shortness; "kurz rauhhaarig" (*Aschers. & Graebn.*), "courtement pubescents" (*Rouy*). In lacking this very short strigose pubescence the legumes of var. *gaspensis* can readily be

<sup>1</sup> L. Fl. Suec. ed. 2: 256 (no. 657) (1755).

<sup>2</sup> L. Sp. Pl. ed. 2: 1064 (1763).

<sup>3</sup> DC. Astrag. 58 (1802).

<sup>4</sup> Rouy, Fl. de Fr. v. 169 (1899).

<sup>5</sup> Aschers. & Graebn. Synop. vi<sup>2</sup>. 763 (1909).

<sup>6</sup> L. Syst. Nat. ed. 10, ii. 1173 (1758-59).



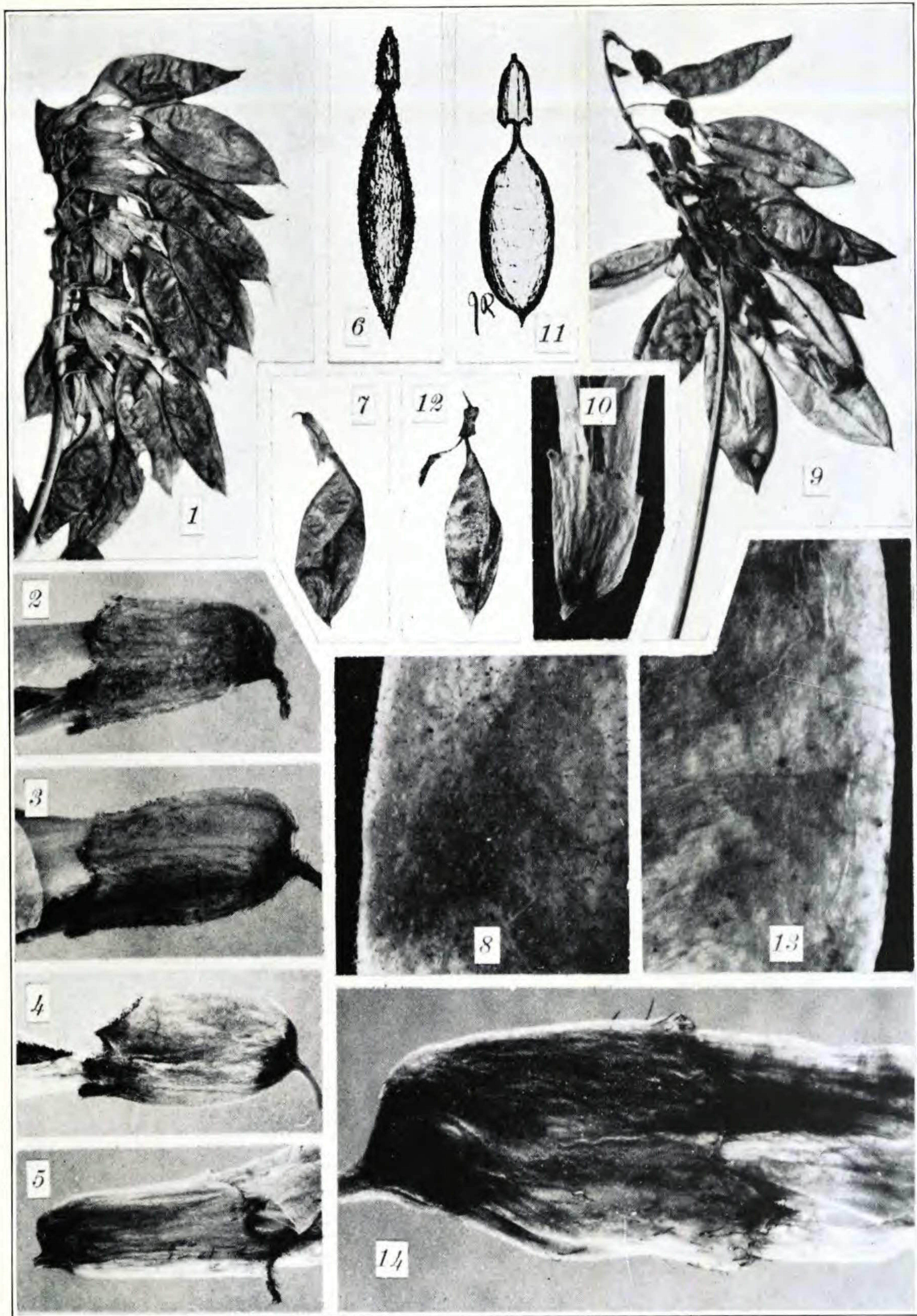


Photo E. C. Ogden.

ASTRAGALUS FRIGIDUS AND ITS AMERICAN VARIETIES

A. FRIGIDUS: FIG. 1, fruiting raceme,  $\times 1$ , from Haute-Savoie; FIG. 2, calyx,  $\times 4$ , from Hungary; FIG. 3, same, from Jemtland; FIG. 4, same from Lappmark; FIG. 5, same, from Jenisei; FIG. 6, Rousseau's fig. of fruit; FIG. 7, fruit,  $\times 1$ , from Haute-Savoie; FIG. 8, surface of legume,  $\times 10$ , from Haute-Savoie.

Var. GASPENSIS: FIG. 9, fruiting raceme,  $\times 1$ ; FIG. 10, calyx,  $\times 4$ ; FIG. 11, Rousseau's fig. of fruit; FIG. 12, fruit,  $\times 1$ ; FIG. 13, surface of legume,  $\times 10$ .

Var. AMERICANUS: FIG. 14, calyx showing trichomes,  $\times 10$ , from Alberta.

distinguished from those of the European plant; but in size and outline I do not get satisfaction in applying Rousseau's stated and illustrated differences (see FIGS. 6 and 11). FIG. 1 is a fruiting raceme of typical *A. frigidus* from Haute-Savoie; FIG. 9 a similar but riper raceme of var. *gaspensis* from the Bonaventure River, Quebec. Except for the more shrunken and smaller calyx of the Quebec plant and the lack of minute hairs on its legumes I see no appreciable difference, surely nothing specific.

So far as I can see the two American plants, *Astragalus frigidus*, var. *americanus* and var. *gaspensis* are vegetatively tall extremes of a circumboreal species, differing from the Eurasian type also in having glabrous legumes and more generally (but not always) glabrous calyx-tubes and paler calyx-teeth. In size of fruit var. *gaspensis* scarcely differs from typical *A. frigidus*, but its calyx is usually a little shorter. Var. *americanus* has the fruit rather larger (the body 2–2.5 cm. long, that of var. *gaspensis* 1.5–2.2 cm. long).

In PLATE 472, FIG. 1 is a fruiting raceme,  $\times 1$ , of *Astragalus frigidus* from Haute-Savoie, 18 juillet, 1866, *Delaunay*; FIG. 9, a similar raceme of var. *gaspensis* from the Bonaventure River, Quebec, August 5–8, 1904, *Collins, Fernald & Pease*; FIG. 6, Rousseau's illustration of the fruit of *A. frigidus* (source not stated); FIG. 7, a ripe legume of *A. frigidus*,  $\times 1$ , from Haute-Savoie (*Delaunay*); FIG. 11, Rousseau's illustration,  $\times 1$ , of legume of his *A. gaspensis*; FIG. 12, a ripe legume,  $\times 1$ , of var. *gaspensis* from the TYPE-region, Little Cascapedia River, Quebec, July 29 and 30, 1904, *Collins, Fernald & Pease*; FIG. 8, surface of legume,  $\times 10$ , of *A. frigidus* (same collection as FIGS. 1 and 4); FIG. 13, surface of legume,  $\times 10$ , of var. *gaspensis* (same collection as FIG. 6); FIG. 5, calyx,  $\times 4$ , of *A. frigidus* from the Jenisei, *Tolmatchew*, no. 277; FIG. 4, the same from Torne Lappmark, *Alm (I. P. E.)*, no. 6520; FIG. 2, the same from Mt. Tátra, Hungary, 1870, *Gustav*; FIG. 3, the same from Jemtland, *Sondén*; FIG. 14, calyx,  $\times 10$ , of var. *americanus*, showing some pubescence on tube, from Maligne Lake, Alberta, *S. Brown*, no. 1250; FIG. 10, calyx,  $\times 4$ , of var. *gaspensis*, from the TYPE-region (same as FIG. 6).

ASTRAGALUS ALPINUS L., var. **labradoricus** (DC.), comb. nov. *A. secundus* Michx. Fl. Bor.-Am. ii. 66 (1803), not DC. (1802). *A. Labradoricus* DC. Prodr. ii. 287 (1825); Rousseau, Contr. Lab. Bot. Univ. Montréal, no. 24: 24 (1933). *A. alpinus*, var. *Brunetianus* Fernald in RHODORA, x. 51 (1908), as to plant of the St. Lawrence, not as to type.

Rousseau clearly shows that the plants which I separated as *Astragalus alpinus*, var. *Brunetianus* differ in one apparently definite point: the plant of the St. Lawrence and of Lake St. John (*A. secundus* Michx. and *A. labradoricus* DC.) having the strigose legumes essentially straight and somewhat thicker than in the plant of the Restigouche and St. John valleys (also of the Kennebec and the Connecticut), which has slightly more slender and slightly falcate legumes. The

designated type of var. *Brunetianus* being *Fernald*, no. 24 from Fort Fairfield, Maine, the latter name must be reserved for the plant with arcuate legumes. I am not able to follow Rousseau, however, in treating *A. Brunetianus* (Fern.) Rousseau, l. c. 30 (1933) and *A. labradoricus* as species distinct from the circumpolar *A. alpinus*, and, above all, as themselves specifically separate. As a normally varying circumpolar species *A. alpinus* is quite typical; scores of circumpolar species show very similar slight changes as they push southward into ecologically quite different temperate areas. Furthermore, as a species *A. alpinus* (including vars. *labradoricus*, *Brunetianus* and some others) stands quite clearly apart from its several allies (with plump stipitate legumes with a narrow partial septum—Rydberg's *Atelophragma*) in densely matted habit, compact raceme with rachis scarcely or barely elongating, and strongly reflexed and imbricated fruits. The varietal (to Rousseau specific) differences are those of degree of pubescence and size and a slight difference of form of the legume, not significant structural differences. Rousseau's key follows:

- Légumes fortement pubescents; tube du calice (long. 3 mm.);  
 ailes de la corolle (larg. 2.5–5 mm.) . . . . . 3. *A. alpinus*.  
 Légumes légèrement pubescents, plus grêles; tube du calice  
 court (long. 2–2.5 mm.); ailes de la corolle (larg. max. 2.5  
 mm.).  
 Ailes de la corolle (larg. 2–2.5 mm.); légumes droits, gonflés,  
 oblancéolés . . . . . 4. *A. labradoricus*.  
 Ailes de la corolle (larg. 1.5 mm.); légumes courbés, un peu  
 aplatis . . . . . 5. *A. Brunetianus*.

In typical *A. alpinus* the pubescence of the legume is, indeed, denser than in the two varieties of southeastern Canada and New England; but in plenty of European (typical) *A. alpinus* I find the calyx-tube as short as or even shorter than Rousseau's 3 mm. (barely 2 mm. in Mme. Crozet-Bourgeau's material from Haute-Savoie; 2–2.5 mm. in Fiori, Béguinot & Pampanini's no. 465 from Italy; barely 2 mm. in Blytt's from Norway; 2.5 in Schrenck's from Lapland; 2.3–2.7 mm. in Tolmatschew's no. 285 from Novaja Semlia, etc.), though in some specimens the calyx-tube does reach a length of 3 mm. In boreal America likewise, it is easy to find fully flowering material of *A. alpinus* with calyx-tubes only 2–2.5 mm. long, though, as in Eurasia, they may reach a length of 3 mm.

As to the very narrow wing-petals (only 1.5 mm. broad) ascribed by Rousseau to var. *Brunetianus*, it is not without significance that the

TYPE specimen (*Fernald*, no. 24) should show wings 2.5 mm. broad and that well-prepared specimens in full anthesis from the same region (St. John valley) should have wing-petals 3 mm. broad.

Incidentally two collections from Pigeon Lake in Drummond, Bayfield County, Wisconsin, are instructive. The first, collected by *Ludlow Griscom*, June 19, 1928, closely matches Scandinavian material of *A. alpinus*, forma *arcticus* Sondén in *Svensk Bot. Tidskr.* i. 233 (1907) in its very large and deeply colored flowers and in the dense black or black-and-white pilosity of the legumes, but in outline the latter are quite like those of var. *Brunetianus*, in which the pubescence is sparse and short. This material, consequently, stands midway between the deepest-colored and largest-flowered extreme of *A. alpinus* and the plant with sparsely strigose and falcate legumes which has become accentuated and widespread in the valleys of New Brunswick and adjacent Quebec and of northern New England. The other series from the same station on Pigeon Lake was collected on July 28, 1934, by *N. C. Fassett* (no. 16,481) but the Fassett material is more strongly canescent throughout, the familiar response to xerophytic conditions. Furthermore, the calyx and slender arcuate legumes are copiously *white* (instead of black)-*pilose*, some legumes entirely so, others with a mixture of black. Such change, from black to white, in the trichomes of calyx and legume is not without precedent; and even Rydberg admitted to the same species plants with such diverse superficial variation. *A. eucosmus* Rob. (*Atelophragma elegans* (Hook.) Rydb.) is a species with such variation: "pod . . . black-hairy or rarely white-hairy" (Rydb. in *N. Am. Fl.* xxiv. 372). The calyx-tube of *A. eucosmus*, similarly, may be either black-hairy or white-hairy or (in var. *facinorum* Fern.) quite glabrous. If *A. eucosmus* (and several other species) thus fluctuates it need not surprise us to find similar fluctuations in *A. alpinus*.

ASTRAGALUS MEXICANUS A. DC., var. **trichocalyx** (Nutt.), comb. nov. *A. trichocalyx* Nutt. ex Torr. & Gray, *Fl. N. Am.* i. 332 (1838).

Although Rydberg, *N. Am. Fl.* xxiv. 461 (1929), ascribed to his *Geoprumnon mexicanum* (*Astragalus mexicanus*) calyx—"teeth subulate, 5 mm. long," while his *G. trichocalyx* (*A. trichocalyx*) is said to have them only "1.5 mm. long," I am unable to find such a difference. The several sheets of typical *A. mexicanus* in the Gray Herbarium have calyx-teeth only 2-3 mm. long. I find them as long or barely shorter in *A. trichocalyx*. The only differences of significance seem